





Intent

I. Design Standards: Site Design

Minimize environmental and, to the maximum extent feasible, visual impacts by performing a detailed site analysis and designing to fit amenities unobtrusively into the existing landscape.



"The extreme clarity of the desert light is equaled by the extreme individuation of desert life forms.
Love flowers best in openness and freedom." - Edward Abbey



1.0 Planning



Goals

- Integrate amenities unobtrusively
- Where feasible, use previously disturbed locations to place amenities
- Minimize visibility of structures from adjacent neighborhoods
- Maximize natural screens and buffers
- Avoid disturbing any archaeological sites
- Avoid disturbing significant natural features such as landforms, washes and significant stands of vegetation
- Protect significant landforms, boulder outcroppings, desert pavement topsoil and native plant materials
- Identify the inventory of available materials for re-use on the site

1.1 Site Analysis

All existing site features and conditions shall be thoroughly documented, including a digital photographic record.

Based on the existing conditions documentation, an analysis of each site's opportunities and constraints shall be conducted.

Field verification with Preserve staff shall be conducted for each aspect of the analysis.

See Section IV, "Design Approval and Inspection Process", for additional information.

1.2 Conceptual Site Plan Studies

Conceptual site plan options shall be developed which incorporate the required program elements and which address environmental and neighborhood concerns.

Plans shall delineate archaeologically and environmentally sensitive areas and historical drainage patterns, and address such concerns as minimizing site disturbances, grading concerns, construction staging areas, neighborhood visibility and preservation of significant site features.

Plans shall be reviewed by Preserve staff prior to proceeding with formal DRB process.

2.0 Parking

Goals

- Minimize environmental and negative visual impacts of parking

2.1 Layout

Parking areas shall be designed to minimize site disturbances, including cuts and fills, removal of significant vegetation and visibility from surrounding areas.

In sloped areas, parking shall be oriented to be generally parallel to the existing topography and shall be laid out in a tiered manner in order to minimize cross slopes.

Tiers shall be designed to minimize the overall area of grading disturbance. Tiers shall be graded to integrate parking into the site and vertical cuts and retaining situations will be considered to the extent they reduce overall site disturbance and visibility of the parking areas.

To the extent topography allows, parking areas should be broken into smaller “pods” separated by landscape areas to avoid large contiguous parking areas.

Parking shall not be allowed outside of designated parking areas to assist in controlling usage. The design of the parking areas shall discourage parking other than in designated areas through layout, signage and the use of landscape and barriers incorporated into the site design. Where appropriate, non-motorized transportation or mass transit systems will be encouraged for the public to reach Preserve access areas.

2.2 Materials

In order to reduce storm water runoff and the heat island effect, alternative materials, such as stabilized decomposed granite, should be considered for parking surfaces in lieu of asphalt.

Areas requiring ADA accessibility and areas prone to erosion and/or wear shall be identified and appropriately addressed through the use of alternate materials such as seeded and exposed aggregate concrete.

In order to reduce storm water runoff, large areas of impervious materials shall be avoided.

Water harvesting techniques shall be incorporated into the design to utilize storm water runoff to water adjacent landscape areas. This may include grading solutions that distribute surface water directly to landscape areas and/or to temporary storage areas that would store the water for future landscape irrigation uses.

In order to create seamless transitions between the built and natural environments, curbs should be avoided wherever possible. Where curbs are required for drainage or traffic control reasons, ribbon curbs and/or roll curbs should be considered as alternatives to raised curbs. In areas where raised curbs are unavoidable, curb cuts or other strategies shall be incorporated to allow for the movement of desert tortoises and other small desert creatures.

Material colors and finishes shall integrate and be compatible with the site and site architecture.





2.3 Landscape

Large areas of native landscape shall be designed into the parking layout between parking "pods" to further break up parking areas.

Enhanced densities of plant materials shall be used only within the parking areas in order to provide shade and to mitigate the visual impact of the parking areas. In all other locations, trees and other plant materials shall be used in a manner that will be consistent with the naturally occurring densities of vegetation in the area.

To the extent possible, plant material from the site shall be used as landscaping to visually buffer the parking areas from any surrounding uses and to integrate the parking areas into the site.

See Section 3.0, "Landscape", for additional information.

2.4 Gates

Gates will be required to restrict use after operating hours. Gates shall be integrated into the site and the site architecture.

Automatic exit gates with traffic loops or other sensing devices shall be utilized for egress. The use of treadles shall be avoided.



2.5 Lighting

Low-level lighting solutions such as at-grade drive over type fixtures or bollards shall be utilized for safety and security.

If pole mounted fixtures are required or desired in a particular area, height shall be limited to 12 feet maximum at the top of pole.



Light fixtures shall be constructed of naturally expressed materials that are compatible with the character of the site and site architecture. Light fixtures shall require low maintenance.



See Section 5.0, "Site Lighting", for additional information.

3.0 Landscape

Goals

- Preserve the natural character of each site
- Restore disturbed areas to replicate each site's natural character
- Provide natural habitat for indigenous animal species
- Minimize the use of potable water
- Provide educational and interpretive opportunities



3.1 Preservation

Develop a comprehensive program to preserve the natural character of each site.



Establish a baseline inventory of each site's vegetative community, including plant species list, natural plant densities, habitats, plant associations and soil characteristics.



Provide a comprehensive inventory of all vegetation found within established construction envelope.

Trees with a caliper of 10 inches or greater and all multi-arm saguaros shall be designated as significant site features and shall be left in place, undisturbed, to the greatest extent practical.

Develop a salvage program for each specific site, including inventory checklist, tracking system, salvage methodologies, storage area and warranty specifications. The storage area may be located off-site to minimize on-site disturbance.

In addition to those plants protected under the City of Scottsdale's

Native Plant Ordinance, each site's salvage program should include the salvage of:

- All viable cacti of all sizes, including cholla, prickly pear, barrels, hedgehog, mammalarias, ocotillos, yuccas and immature saguaros
- All viable trees and shrubs with two inches or greater caliper
- A quantity of each species of shrub to satisfy the requirements of the site's restoration program shall be salvaged and/or procured prior to site clearing and grubbing in order to ensure availability

Develop a program to preserve native topsoils, including decomposed granite and "desert pavement" materials. Lichen covered rocks greater than 12 inches in diameter are to be salvaged and stockpiled for hand placement during restoration. Establish an area for stockpiling materi-



als for use in top-dressing disturbed areas of the site. If practical, storage area may be located off-site to minimize on-site disturbance.

All rock top-dress materials shall match the character and color of the existing native stone.

See Section IV, "Design Approval and Inspection Process", for additional information.

Prior to the start of any site disturbance, all areas outside of disturbance envelope shall be fenced off from all access by placing a temporary 6-foot high chain link fence 5 feet inside of approved disturbance envelope. Access areas shall be clearly marked and no unauthorized activities shall be allowed outside of fence line.

See Section III, "Design Standards: Construction", for additional information.





3.2 Restoration

All areas of the site that were either previously disturbed or which are disturbed during the process of creating access area amenities, shall be restored to blend with the natural character of the site. The pre-disturbance baseline shall be referenced to establish proper vegetative and soil characteristics.

A comprehensive restoration and revegetation program shall be developed for each site. Considerations should include the use of site salvaged materials such as trees, shrubs, cacti and topsoil. In addition, supplemental materials may be utilized to ensure existing densities and plant associations are reestablished in order to maintain and to promote wildlife habitat.

The restoration program shall use a combination of salvaged materials, one and five gallon size container plants, native seed mixes and native topdressing materials.

Native seed mixes shall be specified to include only those species of plants indigenous to the site and immediate surroundings, including

wildflowers, grasses and other herbaceous perennials. If used, these materials should be dry scattered in the appropriate areas, ideally from mid-September through October. These materials shall not be hydroseeded and shall not require a permanent irrigation system.

All plant materials shall be native and indigenous to each specific site. Plant densities shall provide a seamless transition from newly planted areas to the existing, naturally occurring Preserve landscape.

3.3 Provide Habitat and Biodiversity

Develop a landscape program that considers the proper plant types and associations that provide native animal species with food and cover consistent with other sections under landscape.

3.4 Minimize the Use of Potable Water

Program shall be developed to maximize the use of rainwater harvesting, including surface runoff and onsite storage.

A long-term maintenance program shall be developed for each site that establishes a process to eventually remove all plant materials from all artificial irrigation methods. Parking

lot islands and gathering areas may be exempted. Included in this program are considerations such as gel-type hydration soil amendments, maintenance specifications and a long-term irrigation schedule that

gradually reduces the amount of potable water used for irrigation.

All revegetation and restoration areas shall be established utilizing a temporary surface irrigation system.



4.0 Site Elements

Goals

- Integrate into location and overall project design
- Find unique solutions that express environmentally responsible design

4.1 Bridges/Culverts

Bridges should be designed to minimize site disturbance, including the flow of natural watercourses. The use of culverted crossings should be avoided in favor of free span designs or dip sections where appropriate.



Pedestrian bridges should be utilized in all situations requiring the crossing of washes in excess of 75 c.f.s. or where washes are more than 3 feet deep. Vehicular bridges should be utilized for washes exceeding 250 c.f.s. This requirement shall apply only to wash crossings within the limits of the designated access area location.

Bridge materials should be constructed of naturally expressed materials such as steel or wood and should be designed to integrate with the surrounding landscape, other site structures, and with site amenities.

Where possible, bridges should be situated to enhance each location's entry experience.

Minimize the width of bridges to encourage the migration of native animal species.

4.2 Signage

Develop a comprehensive signage program for access areas ensuring consistency in design and message of wayfinding, identification and educational signs.

Develop a site specific interpretive signage package that takes advantage of educational opportunities to illustrate interesting aspects of the Sonoran Desert and the Preserve. Integrate wayfinding signage into the site and site architecture.





4.3 Educational Opportunities
As a component of the overall interpretive signage program describing the landscape, landforms and wildlife for each site, include explanatory information on the special considerations and processes put in place to maximize environmental conciseness and the expected outcomes concerning site planning.

Coordinate volunteer groups to participate in such activities as the salvage of the smaller plants and cacti for re-use on the project.

4.4 Pedestrian Barriers
Locate barriers to discourage unauthorized access into the Preserve and trailblazing, and to protect environmentally and archaeologically sensitive areas.

Design barriers and fencing to allow wildlife movement.

Utilize native and/or naturally expressed materials in the creation of the barriers.

Design barriers and fences to be transparent in nature.

4.5 Site Furnishings
Site furnishings such as trash receptacles, bike racks, watering troughs, benches and shade structures shall be designed to be integrated into the site and the site architecture and shall be constructed of naturally expressed materials.



Creative solutions and designs shall be incorporated to express the unique character of the access area environs. Pre-manufactured catalogue specifications should be avoided unless the above criteria can be met.

5.0 Site Lighting

Goals

- To the maximum extent feasible, eliminate light trespass from site
- Reduce impact on nocturnal environments and adjacent areas both inside and outside the Preserve
- Develop energy efficient solutions
- Design fixtures and poles to be unobtrusive during the day

5.1 Light Pollution

Site lighting shall be designed to minimize light trespass from the property and shall meet or exceed all ordinance requirements in this regard.

Access areas will be "Dawn to Dusk" facilities as set forth in the Preserve Ordinance. As such, lighting levels shall be designed to meet safety minimums required to assist site egress and should not be designed for nighttime activities.

5.2 Light Fixtures

The following lighting techniques are encouraged: Indirect lighting, down lighting, at grade fixtures, L.E.D., low voltage and solar technologies.

The design of custom fixtures utilizing the above techniques is encouraged. Designs should utilize natural finishes and materials and should become natural expressions and extensions of the environment.

The following lighting techniques shall be avoided: Shoebox type fixtures mounted on poles, fixtures over 12 feet in height, high-pressure sodium fixtures, fluorescent fixtures, unshielded floodlights and uplights.

See Section 2.0, "Parking", for additional information on parking lot lighting.



6.0 Grading and Drainage

Goals

- Minimize engineered solutions to site constraints
- Develop solutions that are natural in appearance and which preserve the natural character of the site
- Reduce detention requirements
- Incorporate water harvesting techniques into drainage concepts



6.1 Site Grading

As part of the Preliminary Site Plan process, develop a Conceptual Grading Program that minimizes site disturbance.

Terrace parking into the site by following the topography.

See Section 2.0, "Parking" for additional information.

Where appropriate, utilize grading cuts to lower the finished elevation of such elements as buildings and parking, in order to better integrate the elements into the site.

Utilize retaining structures where required to minimize the horizontal length of proposed cuts.



Cuts or fills in excess of 3 feet in height should be avoided unless it can be demonstrated that doing so would reduce the extent of site disturbance. In these instances, staff shall review grading design and slope treatments on an individual basis to determine acceptability of solution.

In suitable access areas, provide appropriate ADA access.

6.2 Cut and Fill Slopes

Where appropriate, shorten the length of slopes through the prudent use of retaining methods.

Slopes should mimic the grades and character of the adjacent topography to the greatest extent possible.

Avoid the appearance of "engineered" slopes, i.e. unnaturally straight slopes.

Avoid slopes in excess of 5:1 in order to mitigate potential soil erosion.

Where slopes are justified to be in excess of 5:1, provide methodology to mitigate potential erosion through the use of accepted control techniques such as check dams, revegetation techniques and biodegradable erosion mats.

6.3 Retaining Situations

Utilize where appropriate to minimize horizontal site disturbance.

Minimize height of retaining walls by terracing and stepping walls back.

Integrate structures into the site by utilizing site appropriate and naturally expressed materials such as boulders.

The use of pre-manufactured retaining wall systems shall be avoided.

6.4 Detention

Utilize detention structures only where absolutely necessary to remove pollutants from parking and driveway areas.

Minimize storm water detention requirements by reducing the area of impervious surfaces (such as asphalt) and maximizing the use pervious materials (such as decomposed granite).

Minimize use of non-porous material and high run-off coefficient surfaces for walks and paving.

Avoid disturbing the natural flow of existing site washes.

Develop a program to maximize the use of water harvesting techniques for re-use in the landscape and account for quantities harvested in retention calculations. Use natural channels to convey runoff from rainfall to areas of natural and restored vegetation to supplement





necessary irrigation.

Establish appropriate runoff coefficients for permeable and semi-permeable materials such as stabilized decomposed granite paving.

Locate required on-site detention basins to fit into the site's topography and to be as unobtrusive as possible. A series of smaller and shallower detention basins shall be preferred in lieu of a single deep basin.

Avoid the appearance of engineered basins, i.e. straight sides and flat bottoms.

If necessary, new drainage ways shall mimic the character of existing washes by using similar topography, topdress materials and associated plant materials.

6.5 Erosion Control

Avoid potential erosion problems through proper site planning and grading practices.

Where pre-existing problems exist or where unavoidable, provide solutions that are natural in appearance or which use naturally expressed materials to integrate protection into the site such as gabions, "grasscrete" and filter fabrics with native plantings.

Avoid the use of grouted riprap unless covered by natural materials. All proposed rock materials shall match the existing character of the site. No river stone shall be allowed unless it exists in a natural condition on the particular access area site.